

**REMARKS**

This is in response to the Office Action that was mailed on September 13, 2005. Claim 11 is recast in independent form. Claim 39 is amended to incorporate the recitations of claim 2, claim 2 is cancelled, and the dependencies of claims 3, 4, 6, and 7 are adjusted accordingly. Claims 41 and 42 are cancelled, without prejudice to their subject matter or to their representation in this or a continuing application. No new matter is introduced by this Amendment. Claims 3-37, 39, and 40 are pending in the application.

Claims 41 and 42 were rejected under the first paragraph of 35 U.S.C. §112. Although Applicants do not agree with the Examiner's rationale for this rejection, claims 41 and 42 are cancelled in a good-faith effort to advance the prosecution of this application.

Each of claims 2-37, 39, and 40 was rejected under 35 U.S.C. §103(a) as being unpatentable over each of US 5,230,866 (Shartle), US 4,426,451 (Columbus), US 5,223,219 (Subramanian), and US 5,948,673 (Cottingham). (It is noted that the Subramanian patent was cited in the International Search Report as "defining the general state of the art ... not considered to be of particular relevance".) The rejections are respectfully traversed.

Shartle discloses a fluidic system with capillary stops capable of passing fluid with the application of pressure. Shartle does not teach a reaction chamber in which the fluid sample is able to pass through the reaction chambers by capillary action alone without an outside force such as pressure. Columbus likewise relates to a fluidic system with capillary stops capable of passing fluid

with the application of pressure. Columbus fails also to teach a reaction chamber in which the fluid sample is able to pass through the reaction chambers by capillary action alone, without an outside force such as pressure. Subramanian discloses a diagnostic system with a housing that has an analytical cartridge with a transporting capillary to lead liquid to a reading site with porous matrices for reading the liquid. The Subramanian apparatus does not include all of the features of the apparatus claimed herein. Cottingham discloses an assay device with a variety of wells filled with liquid sample by a combination of hydrostatic and capillary forces. The Cottingham reference does not teach all of the features of the presently claimed apparatus.

In stating the rejections, the Examiner acknowledges that “the cited prior art is silent to the claimed modification to the structure such as angular orientations, grooves, relative cross sectional areas, arrangement of the channels, construction to prevent capillary flow and the arrangement of valves”. In spite of this long list of features of the present invention which are admittedly neither taught nor suggested by the prior art, the Examiner made the rejections. The alleged basis for the rejections is the Examiner’s contention that the choice of angular orientations, grooves, relative cross sectional areas, arrangement of the channels, construction to prevent capillary flow, and the arrangement of valves are “result effective variables”, coupled with the alleged relevance of the decision in *In re Boesch*, 205 USPQ 215.

The *Boesch* decision related to alloys. The court’s pronouncement with respect to the concept of “result effective variable” appears on page 219 of the decision:

In the above-quoted passage from [a specific reference], we note that lowering the  $N_v$  value of a Co-Cr-Ni alloy and deletion of the metals not consumed in precipitation from the  $N_v$  calculation are *expressly suggested*. Considering, also, that the composition requirements of the claims and the cited reference *overlap*, we agree with the Solicitor that the prior art would have suggested “the kind of experimentation necessary to achieve the claimed composition, including the proportional balancing described by appellants’  $N_v$

equation.” This accords with the rule that discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art. *In re Antonie*, [citations omitted]. Accordingly, we conclude that a *prima facie* case of obviousness has been established.

205 USPQ at 219 (emphasis supplied). The Examiner is respectfully requested to explain how the court’s decision in *Boesch* relieves him of the burden of demonstrating that “angular orientations, grooves, relative cross sectional areas, arrangement of the channels, construction to prevent capillary flow, and the arrangement of valves” are present in the prior art.

With respect to claims 3-10, 21-37, and 39, the Examiner is also respectfully requested to identify the portion of *each* of the Shartle, Columbus, Subramanian, and Cottingham references that is relied upon to teach distributor channels and inflow channels dimensioned to have the liquid transport through the distributor and inflow channels effected by capillary forces, and surfaces in the entrance region of the inflow channel in each reaction chamber configured as a means (realized by a sufficiently small rounding radius in the transition region between said side surfaces and said bottom surface to cause sample liquid to flow along said transition regions under the effect of capillary forces) for generating a capillary force causing the sample liquid to flow from the inflow channel into the reaction chamber exclusively by capillary force.

With respect to each of claims 11-20, the Examiner is respectfully requested to identify portions of the references that are relevant to the recited venting features of the presently claimed apparatus.

With respect to claim 24, the Examiner is respectfully requested to identify the portions of each reference that teaches a valve comprising a burst film and/or a porous hydrophobic insert and/or a hydrophobic inner wall in the context of the apparatus of the present invention.

Finally, with respect to claim 40, the Examiner is respectfully requested to identify the portion of each of the Shartle, Columbus, Subramanian, and Cottingham references that is relied upon to teach each distributor channel and each inflow channel being dimensioned to have the liquid transport through the distributor and inflow channels effected by capillary forces, wherein, in each reaction chamber, said surfaces in the entrance region of the inflow channel, which delimit the cavity, are arranged so that the sample liquid flows from the inflow channel into the reaction chamber exclusively by capillary force.

It is respectfully submitted that the Examiner has failed to state a sustainable *prima facie* case of obviousness against any of claims 3-37, 39, or 40.

### **Conclusion**

Applicants respectfully submit that the above remarks and amendments fully address and overcome the outstanding rejections. For the foregoing reasons, Applicants respectfully request the Examiner to withdraw all of the outstanding rejections and objections, and to issue a Notice of Allowance.

Should there be any outstanding issues to be resolved in the present application, the Examiner is respectfully requested to contact Richard Gallagher (Reg. No. 28,781) at (703) 205-8008, to conduct an interview in an effort to expedite prosecution herein.

Application No.: 09/623,910

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If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted,

By 

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